F&eIT Series AC-DC Power Supply Unit

POW-AD22GY or POW-AD13GY

User's Manual

CONTEC CO.,LTD.

Congratulations on your recent purchase of a AC-DC Power Supply Unit.

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Handling Precautions

⚠ CAUTION

- This power supply is dedicated to the F&eIT. Do not use for the other devices.
- Do not use or store the equipment in a hot or cold place, or in a place that is subject to severe temperature changes. (Operating temperature range: 0 - 50°C)
- Do not use or store the equipment in a place subject to direct sunlight or near a heating device, such as a stove.
- Do not use or store the equipment in a dusty or humid place.
  (Operating humidity range: 10 - 90%RH, No condensation)
- As this product contains precision electronic components, do not use or store in environments subject to shock or vibration.
- Do not use or store the product near equipment generating a strong magnetic field or radio waves.
- If you notice any strange odor or overheating, please unplug the power cord immediately.
- In the event of an abnormal condition or malfunction, please consult the dealer from whom the equipment was purchased.

- To avoid electric shock, please do not touch the system with a wet hand.
- Do not modify the unit. CONTEC will bear no responsibility for any problems, etc., resulting from modifying this unit.
- Do not open the unit casing. CONTEC will disclaim any responsibility for equipment whose casing has been opened.
- When disposing of the product, follow the disposal procedures stipulated under the relevant laws and municipal ordinances.

Product Configuration

- System unit...1
- User's Manual...1
- AC Power Supply input connector plug...1
- DC Power Supply output connector plug...2

About the POW-AD22GY or POW-AD13GY

The POW-AD22GY or POW-AD13GY is a compact power supply unit designed to supply DC power to the F&eIT series of products.
This AC-DC power supply unit is carrying out the standard equipment of the DIN rail attachment mechanism to the main part like other products of this series, and can install it simply and smartly.
AC input can prepare 85 - 132V (POW-AD13GY) and wide-range 85 - 264V (POW-AD22GY), and can unite and choose them as a system. In addition, a system can be easily built combining F&eIT series product.

FCC PART 15 Class A Notice

NOTE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in commercial environment.
This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference at his own expense.

WARNING TO USER

Change or modifications not expressly approved the manufacturer can void the user's authority to operate this equipment.

Compliance Requirements

The low voltage directives require that devices operating from power supplies in the range 50 - 1000 VAC or 75 - 1500 VAC observe necessary safety precautions.

The following describes the main points to note so that installations using the POW-AD22GY can comply with the low voltage directives.

Although this information has been prepared to the best of our ability based on the requirements, standards, and other stipulations contained in the regulations obtained by CONTEC, we provide no guarantee that equipment manufactured based on this information will comply with the above directive. Ultimate responsibility for determining how to comply with the low voltage directive and how to confirm compliance is the responsibility of the equipment manufacturer.

POW-AD22GY is an open-type device (a device designed to be housed inside other equipment) and must always be mounted inside a control panel according to standard EN60950. To provide electrical shock protection for people such as operators who do not have the necessary level of electrical knowledge, the control panel must include the following precautionary measures (Installation category:2).

(1) Electric shock protection
  (a) Lock the control panel to ensure that it can only be opened by persons with sufficient knowledge and training on electrical equipment.
  (b) Incorporate a mechanism so that opening the control panel automatically isolates the power supply.

(2) Water and dust proofing

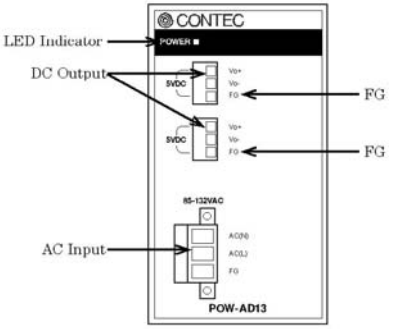
The control panel is dust- and water-proof. If dust-proofing or water-proofing is made inadequate, insulation may deteriorate increasing the risk of insulation failure. The insulation on the POW-AD22GY is designed to deal with pollution degree 2 and therefore the unit should only be used in environments with pollution degree 2 or better.

Pollution degree 1: Dry environment with no conductive dust or other contamination.
Pollution degree 2: Environment in which conductive dust or other contamination does not normally occur, but where conductive contamination may occur from time to time due to accumulation of dust or similar. Typically the environment in an IP54 equivalent control panel in a factory control room or factory floor.
Pollution degree 3: Environment in which conductive dust or other contamination does occur and where conduction may occur due to accumulation of dust or similar. Typically a factory floor environment.
Pollution degree 4: Environment in which conductive contamination such as rain or snow is always present. An outdoor environment.

As described above, if a POW-AD22GY is housed in an IP54 equivalent control panel, contamination level 2 can be achieved.

(3) Installation Requirements
  (a) Build in this power supply according to standard EN60950 which is a built-in power supply.
  (b) Installation category:2 (Pollution Degree 2)
  (c) The protection earth point is FG pin of 100 - 240VAC connector in front of the case. Ground this pin to the earth with the cable.

Nomenclature



Connector

Name	Function
DC input port	2-piece power input connector (detachable). A dedicated plug as a standard item. Screw-in type cable connection.
DC output port	2-piece power output connector (detachable) A dedicated plug as a standard item Screw-in type cable connection

LED Indicator

Name	Function	Indication
Power LED	Power: green	ON: DC output on OFF: DC output off

System Reference

Specifications2

Item		Specifications	
		POW-AD22GY	POW-AD13GY
Input	Voltage	AC85 - 264V	AC85 - 132V
	Current	ACIN 100V:0.3A(Typ. Io=100%) ACIN 200V:0.2A(Typ. Io=100%)	ACIN 100V:0.4A(Typ. Io=100%)
	Frequency	47 - 440Hz	
	Rush current	ACIN 100V:15A(Typ. Io=100%) ACIN 200V:30A(Typ. Io=100%)	ACIN 100V:25A(Typ. Io=100%)
	Leakage current	0.5mA(Max.) (60Hz,IEC60950)	0.18mA(Max.) (60Hz,IEC60950)
	Efficiency	74%(Typ.)	75%(Typ.)
Output	Rated voltage	5.0V ±5%	
	Rated current	2.0A(Max.)	3.0A(Max.)
	Static input fluctuations	20mV(Max.)	
	Static load fluctuations	40mV(Max.)	
	Ripple noise	200mVp-p(Max.)	120mVp-p(Max.)
	Ambient temperature fluctuations	50mV(Max.)(0 - 55ºC)	
	Time-dependent drift	20mV(Max.) (It is change of the 30 minute - 8 hours after input voltage impression in the circumference temperature of 25ºC, and rated input and output)	±0mV(Max.) (It is change of the 30 minute - 8 hours after input voltage impression in the circumference temperature of 25ºC, and rated input and output)
	warm-up time	700ms(Max.) (ACIN 85V, Io=100%)	200ms(Max.) (ACIN 85V, Io=100%)
	holding time	8ms(Typ.)(ACIN 100V, Io=100%) 16ms(Typ.)(ACIN 200V, Io=100%)	10ms(Typ.) (ACIN 85V, Io=100%)
Auxiliary functions	Overcurrent protection	Operates at 125%(Min.) of rated current; auto-reverting	Operates at 105% of rated current; auto-reverting
	Overvoltage protection	Operates at 115%(Min.) of rated voltage (Zener diode clamp)	---
Other functions	FG pin	An FG terminal is provided on the power I/O connectors	
	External dimensions (mm)	52.4(W) x 64.7(D) x 94.0(H) (exclusive of any protrusions)	
	Cooling method	Natural air cooling	
	Service life	It is seven years (Io=75%) at the circumference temperature of 25ºC.	
	Weight of the system unit	110g	150g
	Installation method	One-touch attachment to a 35mm DIN rail	
		The mounting mechanism is provided on the system unit as a standard item.	

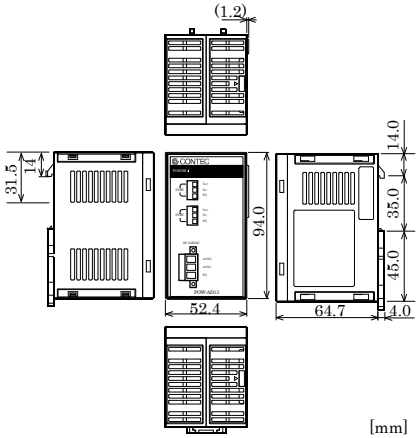
Installation Environment Requirements

Parameter		Requirement description
Ambient temperature		0 - 50ºC
Ambient Humidity		10 - 90%RH (No condensation)
Floating dust particles		Not to be excessive
Corrosive gases		None
Noise immunity	Line-noise	AC line/2kV, Signal line/1kV (IEC1000-4-4Level 3, EN61000-4-4Level 3)
	Static electricity resistance	Contact discharge/4kV (IEC1000-4-2Level 2, EN61000-4-2Level 2)
		Atmospheric discharge/8kV (IEC1000-4-2Level 3, EN61000-4-2Level 3)
Vibration resistance	Sweep resistance	10 - 57Hz/semi-amplitude 0.15mm, 57 - 150Hz/2.0G
		80minutes each in X, Y, and Z directions (JIS C0040-compliant, IEC68-2-6-compliant)
Impact resistance		15G, half-sine shock for 11ms in X, Y, and Z directions (JIS C004-compliant, IEC68-2-27-compliant)
Grounding		Class D grounding (previous class 3 grounding)
Installation location		Installing to the DIN rail (the control boards,etc.) as the power supply dedicated to the F&eIT.

I/O Connectors

Item		Description	
Input	Board connector	5.08mm pitch	12.0A rated current
	Compatible plug	Laterally operable screw-in type (MSTB2,5/3-STF-5,08 made by PHOENIX CONTACT Corp.)	
	Compatible wires	AWG 24 - 12	12.0A rated current
Output	Board connector	3.5mm pitch	8.0A rated current
	Applicable plug	Laterally operable screw-in type (MC1,5/3-ST-3,5 made by PHOENIX CONTACT Corp.)	
	Applicable wires	AWG 28 - 16	8.0A rated current

External Dimensions

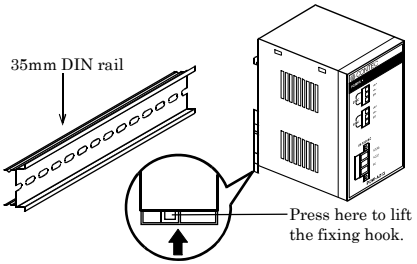


Installation Method

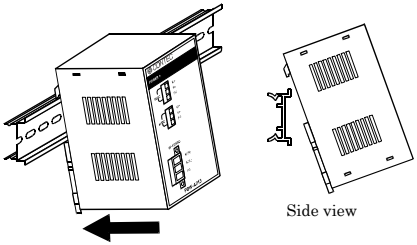
Mounting the AC-DC Power Supply Unit on the DIN Rail

Mounting procedure

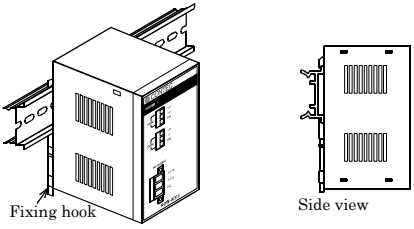
(1) Pushing the fixing hook with a flat-blade screwdriver renders it into a lock-enabled condition.



(2) Hook the AC-DC power supply unit from the upper part of the DIN rail, and press the lower part of the unit against the DIN rail.

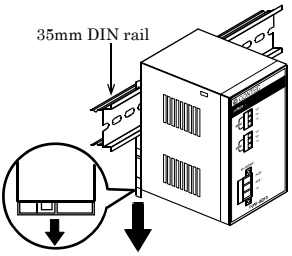


(3) The fixing hook is automatically locked, and the module can be mounted in one-touch.

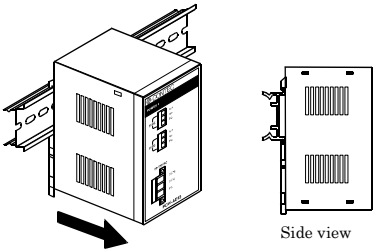


Removal procedure

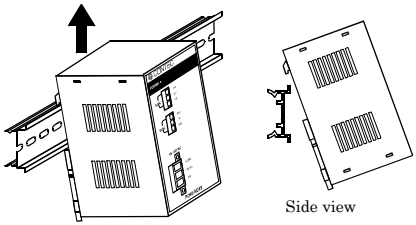
(1) Lower the fixing hook for the unit to unlock it.



(2) With the fixing hook unlocked, pull the lower part of the unit toward you.



(3) By lifting the unit, you can easily remove it from the DIN rail.



Connection Method

Connecting the I/O cables to the AC-DC power supply unit

Cables are connected to the AC-DC power supply unit by means of detachable connectors that are provided as standard items.

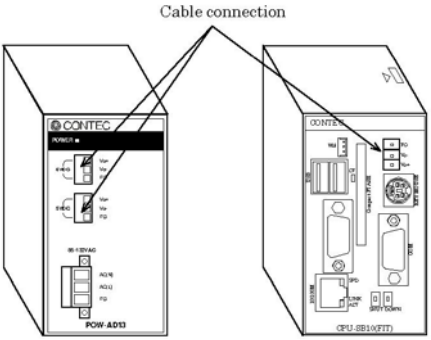
(Input unit: compatible cables: AWG 24 - 12. Tightening torque: 0.5 - 0.6Nm)

(Output unit: compatible cables: AWG 28 - 16. Tightening torque: 0.22 - 0.25Nm)

The AC-DC power supply unit and F&eIT Series product can be cable-connected using the detachable connector that is provided on either the unit face or the modulet face (compatible cables: AWG 28 - 16). *Please use the clothing of a cable, turning to it about about 7mm.*

⚠ CAUTION

Because the AC-DC power supply unit generates heat, a minimum spacing of 2.0 cm should be provided between the POW-AD22GY or POW-AD13GY and any adjoining units, and care should be taken so that the ventilation holes are not covered.



List of Options

FAN Unit

- FAN-FIT FAN Unit For 52.4mm-width unit or module

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